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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,236	07/08/2003	Junichi Kon	030820	6187
38834	7590	01/30/2004	EXAMINER	
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036			LEE, SIN J	
			ART UNIT	PAPER NUMBER
			1752	

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/614,236	KON ET AL.
	Examiner Sin J. Lee	Art Unit 1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 08 July 2003.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.

4a) Of the above claim(s) 12-23 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,2,4 and 6-11 is/are rejected.

7) Claim(s) 3 and 5 is/are objected to.

8) Claim(s) 1-23 are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.

2. Certified copies of the priority documents have been received in Application No. _____.

3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ .
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>12-05-2003</u> .	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-11, drawn to a chemically amplified resist material, classified in class 430, subclass 270.1.
 - II. Claims 12-23, drawn to a patterning method, classified in class 430, subclass 327.
2. The inventions are distinct, each from the other because of the following reasons:
3. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case, the chemically amplified resist material of Invention I can be used in a process materially different from what is described in Invention II. For example, after a photoresist pattern is obtained by exposure and development, the resultant photoresist pattern can then be treated (by heating, for example) so that the activator in the photoresist pattern can generate an acid or a radical. Also, the chemically amplified resist material of Invention I can be used for the production of lithographic printing plates by coating the resist material directly onto an aluminum plate followed by imagewise exposure, development and hardbake (a post-development heating).

4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
5. Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.
6. During a telephone conversation with Mr. Kenneth Salen (attorney for applicants) on January 16, 2004 a provisional election was made without traverse to prosecute the invention of I, claims 1-11. Affirmation of this election must be made by applicant in replying to this Office action. Claims 12-23 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.
7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).
8. It is to be noted that present claim 10 was interpreted by the Examiner to be claiming a chemically amplified resist material according to present claim 1 which is capable of being used in patterning a film or layer formed from a material containing basic species. Also, present claim 11 was interpreted by the Examiner to be claiming a chemically amplified resist material according to present claim 1 which is capable of

being used in patterning a film or layer formed from SiN, SiON, TiN, BPSG, BSG or PSG.

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1, 2, 4, 7, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Pawlowski et al (6,358,665 B1) (*with Shah (4,220,342) and Hosoda et al (3,812,225) which are cited here to support the Examiner's position that Pawlowski's t-butyl perbenzoate is known to decompose at about 300°F (which converts to about 149°C) and Pawlowski's dicumyl peroxide is known to decompose at about 150°C*).

Pawlowski teaches a chemically amplified radiation sensitive composition containing a film forming hydroxystyrene-based resin (present base resin) and a photoacid generator which generates a fluorinated alkanesulfonic acid upon imagewise exposure (present photoacid generator having sensitivity at the wavelength of patterning exposure). See col.4, lines 47-63. In col.18, lines 52-53 and col.19, lines 16-

18. Pawlowski furthermore teaches that *thermal radical generators* such as *t-butyl perbenzoate, dicumyl peroxide* (*both of which are peroxide compounds*) or azo-compounds can be added to his chemically amplified radiation sensitive composition in order to improve the film hardness upon a hardbake. Based on Pawlowski's teaching, one of ordinary skill in the art would immediately envisage adding *t-butyl perbenzoate or dicumyl peroxide* to Pawlowski's composition (since there are only three examples of thermal radical generators given) because Pawlowski teaches that doing so will improve the film hardness upon a hardbake. Therefore, Pawlowski teaches present activator of claims 1 and 7 that generates a radical by a treatment other than the patterning exposure and thus teaches present inventions of claims 1, 2, and 7.

With respect to present claim 4, Pawlowski's t-butyl perbenzoate is known to decompose at about 300°F (which converts to about 149°C) and dicumyl peroxide is known to decompose at about 150°C as evidenced by Shah, col.5, lines 15-17 and Hosoda et al, col.28, lines 23-26, respectively. Therefore, Pawlowski teaches present invention of claim 4.

With respect to present claims 10 and 11, since Pawlowski teaches present chemically amplified resist material of present claim 1, it is the Examiner's position that Pawlowski's composition containing a film forming hydroxystyrene-based resin, a photoacid generator which generates a fluorinated alkanesulfonic acid upon imagewise exposure, and a thermal radical generator would inherently be capable of being used for patterning a film or layer formed from a material containing basic species such as SiN, SiON, TiN, PBSG, BSG or PSG. Besides, Pawlowski teaches (col.20, lines 41-52) that

in a preferred embodiment of his invention, his chemically amplified radiation sensitive composition is used as a photoresist material on a semiconductor substrate such as silicon substrates, silicon oxide, *silicon oxynitride (SiON)*, *titanium nitride (TiN)*, tungsten nitride, tungsten silicide, aluminum, *phosphor-spin-on glass (PSG)*, *boron-phosphor-spin-on-glass (BPSG)*, gallium arsenide, indium phosphide, and the like. Therefore, Pawlowski teaches present inventions of claims 10 and 11.

11. Claims 1, 2, 4, 6, 10, and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kong et al (US 2002/0081504 A1).

Kong teaches ([0010]-[0015]) a photoresist composition including a thermal acid generator, chemically amplified photoresist resin (present base resin), a photoacid generator (present photoacid generator). Kong produces a photoresist pattern by (a) coating his photoresist composition on a substrate to form a photoresist film, (b) exposing the photoresist film, (c) developing the exposed photoresist film to obtain a photoresist pattern, and (d) heating the photoresist pattern. Kong's thermal acid generator *does not* generate acid during the soft baking (which is performed before the step (b)) or post baking process (which is performed after the step (b) but begins to release an acid at a temperature range from about 150 to about 250°C in the heating step (d) (see [0031]-[0032]). Specifically, in his INVENTION EXAMPLE (see [0037]), Kong coats his photoresist composition containing a chemically amplified photoresist resin, triphenylsulfonium triflate (a photoacid generator), and a thermal acid generator of Formula 2 which chemical structure is shown in [0017] onto a silicon wafer, and the coated photoresist composition is baked at 110°C and exposed to ArF laser. The

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photoresist composition is then post-baked at 110°C and developed to obtain a resist pattern. The formed pattern is then heated at 175°C in the heating step (d) in which Kong's thermal acid generator releases an acid. Therefore, Kong teaches present inventions of claims 1, 2, and 4.

With respect to present claim 6, Kong lists four thermal acid generators that can be used in his invention, and those compounds are shown in [0017]. According to the chemical formulas of those thermal acid generators, the thermal acid generators of Formulas 1 and 2 are aliphatic sulfonates, and the thermal acid generators of formulas 3 and 4 are aromatic sulfonates. Therefore, Kong teaches present invention of claim 6.

With respect to present claims 10 and 11, since Kong teaches the chemically amplified resist material of present claim 1, it is the Examiner's position that Kong's photoresist composition would inherently be capable of being used for patterning a film or layer formed from a material containing basic species such as SiN, SiON, TiN, BPSG, BSG, or PSG. Therefore, Kong teaches present inventions of claims 10 and 11.

12. Claims 1, 2, 4, 6, 10, and 11 are rejected under 35 U.S.C. 102(e) as being anticipated by Falk et al (US 2003/0022111 A1).

Falk teaches (see [0011]) a photoresist composition including a film-forming polymer having groups that converts into alkali-soluble groups through acid-catalyzed separation reactions and reactive groups that can react with an expansion component so as to form a chemical bond (present base resin), a photoacid generator that releases an acid when exposed with radiation from a suitable wavelength range (present photoacid generator), and a thermoacid generator that releases an acid when supplied

with sufficient thermal energy. In [0042], Falk teaches the following: on a bottom resist layer that is applied on a substrate to be structured, a top resist layer made up of Falk's photoresist composition is spun on. In a following heating step, in which the solvent can vaporize, the top resist layer is dried at a temperature between 60-160°C. *This temperature is selected so that during this first drying the thermoacid generator is not decomposed.* The dried top resist layer is subsequently exposed to deep UV radiation. Through the irradiation, the photoacid generator is photochemically activated in the exposed regions, producing a latent image of the desired structure in the top resist layer. In the following post-exposure bake (PEB), which heating step has a temperature (T_1) greater than that of the first drying step and in the range between 80-250°C, in the exposed regions of the top resist layer, the functional protective groups of the film-forming polymer are separated by the acid released by the photoacid generator increasing the polarity of the film-forming polymer in these regions, and the resist thus becomes soluble in relation to the alkaline developer. *Temperature T_1 is here chosen such that a thermal decomposition of the thermoacid generator does not take place in the top resist layer.* Subsequently, the top resist layer is developed during which the exposed regions of the top resist layer are detached and removed. In this way, a positive relief pattern is produced in the top resist layer. Subsequently, the top resist layer is subjected to an additional heating step at a temperature T_2 : *temperature T_2 is located in the range between 80-250°C, but is selected higher than temperature T_1 . In this heating step, the thermoacid generator is thermally decomposed, and at the same time the developed top resist layer is dried.* The acid released through the

decomposition of the thermoacid generator separates additional acid-labile protective groups from the film-forming polymer, through which the polarity of the polymer is further increased inside the developed top resist layer. Therefore, Falk teaches present inventions of claims 1 and 2.

With respect to present claim 4, as particularly preferred examples for the thermoacid generator, Falk teaches benzylthiolaniumhexafluoropropanesulfate and 2-nitrobenzyl tosylate. Since there are only two examples given, one of ordinary skill in the art would immediately envisage using 2-nitrobenzyl tosylate as Falk's thermoacid generator. The decomposition temperature of 2-nitrobenzyl tosylate is 120°C as evidenced by present specification, pg.11, lines 13-14, pg.10, lines 22-23. Therefore, Falk teaches present invention of claim 4. Also, 2-nitrobenzyl tosylate is an aromatic sulfonate compound. Therefore, Falk teaches present invention of claim 6.

With respect to present claims 10 and 11, since Falk teaches the chemically amplified resist material of present claim 1, Falk's photoresist composition would inherently be capable of being used for patterning a film or layer formed from a material containing basic species such as SiN, SiON, TiN, BPSG, BSG, or PSG. Therefore, Falk teaches present inventions of claims 10 and 11.

13. Claims 1 and 8-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Kon et al (US 2003/0098464 A1).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome

either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

In his Example 1, Kon teaches (see [0041], [0042], [0050], [0051], [0054], [0147], [0148]) a positive type resist material comprising polyvinyl phenol resin wherein 30 % of total polarity is substituted by t-butoxycarbonyl groups (present base resin), diphenyliodonium triflate (a first photoacid generator which generates an acid when irradiated by light of less than 300 nm), and a substance of the general formula (II)-(1) which is shown in [0054] (wherein R=CH₃) as the second photoacid generator (which generates an acid when irradiated by the light of 300 nm or more). Kon teaches equivalence of the -CH₃ group and -CF₃ group as the R group in the General Formula (II)-(1). Since there are only several choices for the R group taught by Kon, one of ordinary skill in the art would immediately envisage using a substance of the general formula (II)-(1) wherein R=CF₃ as the second photoacid generator in the resist material of Kon's Example 1. The substance of the general formula (II)-(1) wherein R= CF₃ is also used in the present Example 6 as the present activator that generates acids at the wavelength at which the present photoacid generator is not sensitive (see present specification, pg.10, lines 13-20, and pg.15). Therefore, Kon's substance of the general formula (II)-(1) wherein R= CF₃ (which generates an acid when irradiated by the light of 300 nm or more) teaches present activators of claims 1 and 8 and Kon's first photoacid generator which generates an acid when irradiated by light of less than 300 nm teaches present photoacid generator. Thus, Kon teaches present inventions of claims 1 and 8.

Since Kon teaches present invention of claim 1, it is the Examiner's position that Kon's resist material described above would inherently be capable of being used for patterning a film or layer formed from a material containing basic species such as SiN, SiON, TiN, BPSG, BSG or PSG. Therefore, Kon also teaches present inventions of claims 10 and 11.

With respect to present claim 9, Kon teaches (see [0043] and [0052]) that in the first photoacid generator, the number of molecules which react to exposure light having a wavelength of 300 nm or more is 1/5 of the number of molecules which react to exposure light having a wavelength of less than 300 nm and that in the second photoacid generator, the number of molecules which react to exposure light having a wavelength of less than 300 nm is 1/5 of the number of molecules which react to exposure light having a wavelength of 300 nm or more. This statement translates into the following: In the first photoacid generator, for example, 500 molecules will react to the light of the wavelength of 300 nm or less (so as to generate acids) and 100 molecules will react to the light of the wavelength of 300 nm or more, whereas in the second photoacid generator, 100 molecules will react to the light of the wavelength of 300 nm or less and 500 molecules will react to the light of the wavelength of 300 nm or more. This, in turn, means that when one uses the patterning exposure light of 300 nm or less, there will be 100 molecules of the second photoacid generator reacting to this exposure light and 500 molecules of the first photoacid generator reacting to this exposure light. Therefore, when ones use the patterning exposure light of 300 nm or less, the number of molecules of acid generated from the second photoacid generator

(which is equivalent to the present activator) will be 1/5 of the number of molecules of acid generated from the first photoacid generator (which is equivalent to present photoacid generator). Therefore, at the patterning exposure light of 300 nm or less, the teaching of Kon meets the claim limitation of present claim 9. Therefore, Kon teaches present invention of claim 9.

Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 1, 8, 10, and 11 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 and 7 of copending Application No. 10/107,203. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons: Claim 1 of App.'203 states that the resist material comprises a first photoacid generator exhibiting an absorption peak to exposure light having a wavelength of less than 300 nm (which means that the first photoacid generator is sensitive to the light of

less than 300 nm and would generate acids at the light of less than 300 nm) and a second photoacid generator exhibiting an absorption peak to exposure light having a wavelength of 300 nm or more (which means that the second photoacid generator is sensitive to the light of 300 nm or more and would generate acids at the light of 300 nm or more). Claim 7 of App.'203 states that the resist material of claim 1 further comprises a resin of a polarity changeable type (present base resin). Therefore, it would have been obvious to one of ordinary skill in the art to add a resin of a polarity changeable type into the resist material of claim 1 of App.'203 with a reasonable expectation of obtaining a resist material. Since the second photoacid generator of claim 1 of App.'203 would generate an acid at the wavelength of 300 nm or more at which the first photoacid generator is not sensitive, the second photoacid generator of claim 1 of App.'203 teaches present activator of claim 8 that generates an acid by exposure at a wavelength at which the photoacid generator is not sensitive, and the first photoacid generator of claim 1 of App.'203 teaches present photoacid generator. Therefore, combination of claims 1 and 7 of App.'203 would render obvious present inventions of claims 1 and 8. Also, since claims 1 and 7 of App.'203 teaches present invention of claim 1, it is the Examiner's position that the resist material taught by claims 1 and 7 of App.'203 would inherently be capable of being used for patterning a film or layer formed from a material containing basic species such as SiN, SiON, TiN, BPSG, BSG or PSG. Therefore, combination of claims 1 and 7 of App.'203 would render obvious present inventions of claims 10 and 11 as well.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

16. Claim 9 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 7, and 2 of copending Application No. 10/107,203. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

Claim 2 of App.'203 states that in the first photoacid generator, number of molecules which react to exposure light having a wavelength of 300 nm or more, is 1/5 of the number of molecules which react to exposure light having a wavelength of less than 300 nm, and in the second photoacid generator, the number of molecules which react to exposure light having a wavelength of less than 300 nm, is 1/5 of the number of molecules which react to exposure light having a wavelength of 300 nm or more. This statement translates into the following: In the first photoacid generator, for example, 500 molecules will react to the light of the wavelength of 300 nm or less (so as to generate acids) and 100 molecules will react to the light of the wavelength of 300 nm or more, whereas in the second photoacid generator, 100 molecules will react to the light of the wavelength of 300 nm or less and 500 molecules will react to the light of the wavelength of 300 nm or more. This, in turn, means that when one uses the patterning exposure light of 300 nm or less, there will be 100 molecules of the second photoacid generator reacting to this exposure light and 500 molecules of the first photoacid generator reacting to this exposure light. Therefore, when ones use the patterning exposure light of 300 nm or less, the number of molecules of acid generated from the

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second photoacid generator (which is equivalent to the present activator) will be 1/5 of the number of molecules of acid generated from the first photoacid generator (which is equivalent to present photoacid generator). Therefore, at the patterning exposure light of 300 nm or less, the teaching of claim 2 of App.203 meets the claim limitation of present claim 9. Therefore, combination of claims 1, 7, and 2 of App.'203 would render obvious present invention of claim 9.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

17. Claims 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the cited prior arts teaches or suggests that the activator generates an acid or a radical as a result of being decomposed by heating at the temperature equal to or below the pre-baking temperature (i.e., the baking temperature at which a resist film is formed from a coated film of the resist material).

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is (571)272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F. Huff, can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

S. J. Lee

S. Lee

January 20, 2004

Sin J. Lee

Sin J. Lee

Patent Examiner

Technology Center 1700